

REPORT

2024 TNFD Report

The Taskforce on Nature-related Financial
Disclosures

CKPower Biodiversity Action Plan (BAP)

May 2025



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EXECUTIVE SUMMARY

As businesses and operations expand, the increasing dependencies and impacts on nature are inevitable in a rapidly evolving world. With the current alarming rate of biodiversity loss, it is being recognized as a risk management issue. Financial institutions are beginning to implement more rigorous biodiversity criteria for funding decisions, while the private sector faces increased reporting requirements. The Kunming-Montréal Global Biodiversity Framework 2022 has therefore been established as the key agreement for biodiversity-related targets at the global level. As a result, the Taskforce on Nature-related Financial Disclosures (TNFD) was developed to help businesses identify, assess, develop, and manage their biodiversity and nature-related risks.

As part of CK Power Co., Ltd. (CKPower)'s commitment to Sustainable Development Goals (SDGs), the company voluntarily adopts the TNFD to assess its nature-related impacts, dependencies, risks, and opportunities. This report sets the stage for CKPower's first TNFD assessment, plans strategic pathways, and identifies key gaps the company will need to address in the coming years. The report scope includes direct operating assets but does not currently include the value chain as additional information is being gathered.

CKPower's governance structure comprises the Board of Directors (BoD), four sub-committees, and the management team. The company's Sustainable Development Steering Committee, established in 2022, is responsible for setting the strategic direction, and monitoring and evaluating performance on sustainability-related goals. CKPower has also established its 'Biodiversity Roadmap' (2023–2027) with the long-term goals of assessing the residual impacts of all operations by 2026 and achieving No Net Loss (NNL) of biodiversity and Net Zero of ecosystem services by 2040. The company is currently in the first phase of its action plan.

As a renewable energy producer, CKPower's direct operations include hydropower and solar power generation. It also operates two cogeneration power plants and distributes electricity in both Lao PDR and Thailand. The company's highest materiality impacts are related to the cogeneration plants, while hydropower production is the process most dependent on ecosystem services. Due to their location in sensitive biodiversity areas, environmental management of hydropower plants is a priority for the company.

To minimize risk, Environmental Impact Assessments (EIAs) have been carried out for all operational sites. Additionally, Critical Habitat Assessments (CHAs) are also being carried out in line with IFC PS6 requirements for priority operational sites. For the XHPP and NN2, Biodiversity Action Plans are being developed to achieve best practices to the extent feasible. With this information, the company's Biodiversity Roadmap will be actively developed and adapted to establish a timeline for the implementation of specific measures to reduce the impact on nature. One of the major successes of CKPower's environmental management is the installation of a fish ladder at one of its active hydropower plants, which allows fish to migrate through the Mekong River.

As a TCFD adopter, CKPower has already disclosed relevant metrics related to climate change and pollution and is currently working to collect the necessary data to disclose the metrics required by the TNFD. CKPower has already taken the first steps in the right direction to fully integrate the management of nature-related issues as part of its business strategy. In the coming years, the company will focus on how to manage the physical, transitional, and systemic risks of biodiversity loss in the short, medium, and long term. It will also break down the complexity of the value chain to look at how suppliers operate and prevent further loss of biodiversity and natural areas.

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List of Acronyms and Abbreviations

Abbreviation	Complete Expression
ACIAR	Australian Centre for International Agriculture Research
ASEAN	Association of Southeast Asian Nations
AZE	Alliance for Zero Extinction
BAP	Biodiversity Action Plan
BIC	Bangpa-In Cogeneration Company Limited
BKC	Bangkhenchai Company Limited
BoD	Board of Directors
CA	Concession Agreement
CBD	Convention on Biological Diversity
CHA	Critical Habitat Assessment
CKPower	CK Power Public Company Limited
COD	Commercial Operation Date
CSP	Concentrating Solar Power
CSR (DIW)	Corporate Social Responsibility (Department of Industrial Works)
CSU	Charles Sturt University
eDNA	Environmental DNA
ENCORE	Exploring Natural Capital Opportunities, Risks and Exposure
ESG	Environmental, Social and Government
ESIA/EIA	Environmental and Social Impact Assessment/Environment Impact Assessment
FPIC	Free, Prior, and Informed Consent
FSL	Full Supply Level
GBF	Kunming-Montreal Global Biodiversity Framework
GHG	Greenhouse gas
GICS	Global Industry Classification Standard
GRI	Global Reporting Initiative

ha	hectare
HPP	Hydropower Plant
IBA	Important Bird Area
IBAT	Integrated Biodiversity Assessment Tool
IFC PS	International Finance Corporation Performance Standard
ILO	International Labor Organization
ISIC	International Standard Industrial Classification for All Economic Activities
ISO	International Organization for Standardization
KBA	Key Biodiversity Area
km ²	square kilometre
Lao PDR	Lao People's Democratic Republic
LARReC	Living Aquatic Resources Research Centre
LGBTQI+	lesbian, gay, bisexual, transgender, queer or questioning
LPHPP	Luang Prabang Hydroelectric Powerplant
m	metre
m ²	square metre
MW	Mega Watt
NAP	National Action Plan
NG	Net gain
NN2HPP	Nam Ngum 2 Hydroelectric Powerplant
NN2PC	Nam Ngum 2 Power Company Limited
NNL	No Net Loss
NP	National Park
NPA	National Protected Area
NTZ	No take zone
NUoL	National University of Laos
OECD	Organization for Economic Cooperation and Development

PIT	Passive Integrated Transponders
PPA	Provincial Protected Area
PPA	Power Purchase Agreement
PV	Photovoltaic
ROR	Run-of-river
SDGs	Sustainable Development Goals
SSC	Shared Service Centre
TNFD	Taskforce on Nature-related Financial Disclosures
TTW	Thai Tap Water Public Company Limited
UDHR	Universal Declaration of Human Rights
UNDRIP	United Nations Declaration of the Rights of Indigenous Peoples
UNGC	United Nations Global Compact
UNGPs	United Nations Guiding Principles
WDPA	World Database of Protected Areas
XHPP	Xayaburi Hydroelectric Powerplant
XPCL	Xayaburi Power Company Limited
3Cs	Competence, Co-creation, and Cooperation

1 Introduction

About TNFD

The Taskforce on Nature-related Financial Disclosures (TNFD) is a global initiative created to develop a framework that supports companies and financial institutions with risk management and disclosure to identify, assess, manage, and disclose nature-related issues. With the current alarming rate of global biodiversity decline, central banks and financial supervisors are increasingly recognizing nature loss as another source of systemic risk. Nonetheless, most companies and capital providers still do not fully understand their nature-related issues.

As a result, the TNFD recognizes that nature-related issues should be incorporated into the strategy, risk management, and capital allocation of businesses alongside climate change. The TNFD recommendations have been designed to accommodate different materiality approaches and are aligned with global policy targets such as Target 15 of the Kunming-Montreal Global Biodiversity Framework (GBF)¹ while leveraging the best available scientific data. Based on the final TNFD framework publications² made available on 18 September 2023, the TNFD recommended disclosures for all sectors are structured around four pillars under 14 recommended disclosures (see Table 1-1).

Table 1-1: TNFD Recommended Disclosures (TNFD, 2023)

Governance	Strategy	Risk Management	Metrics & Targets
The organization's governance of nature-related dependencies, impacts, risks, and opportunities	The effects of nature-related dependencies, impacts, risks, and opportunities on business model, strategy, and financial planning.	The processes used by the organization to identify, assess, prioritize, and monitor nature-related dependencies, impacts, risks, and opportunities.	The metrics and targets used to assess and manage material nature-related dependencies, impacts, risks, and opportunities.

Scope and Purpose

This assessment was undertaken for CKPower Public Company Limited (CKPower) and its subsidiaries to better understand its nature-related dependencies, impacts, risks, and opportunities in line with the TNFD recommendations. The scope of this assessment covers only the direct operating assets, as the necessary data from the company's extensive indirect operations and value chain is still being collected. Upstream and downstream operations within CKPower's value chain will be included in future reporting cycles. The Luang Prabang Hydropower Plant Project in Lao PDR is not included in this initial assessment as it is still under construction. However, it is undergoing an environmental compliance process, including the development of a Biodiversity Action Plan (BAP) in line with the International Financial Corporation Performance Standard 6 (IFC PS6) on Biodiversity Conservation and Sustainable Management of Living Resources³.

¹ <https://www.cbd.int/doc/c/e6d3/cd1d/daf663719a03902a9b116c34/cop-15-l-25-en.pdf>

² <https://tnfd.global/tnfd-publications/>

³ <https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-6>

CKPower’s Biodiversity Roadmap

As global biodiversity is evidently in decline and with the urgency towards nature-positive goals, CKPower has set forth its first initiation of the five-year action plan of the ‘Biodiversity Roadmap’ in 2022 (Figure 1-1). The company is currently in its first phase of the roadmap, with long-term visions to assess all operation sites’ residual impacts by 2026 and achieve biodiversity and ecosystem services No Net Loss (NNL) and Net Zero by 2040. CKPower is also committed to the development of a Biodiversity Management Plan (2022–2026) for all operation sites in biodiversity-sensitive areas and has set its yearly targets, indicators, initiatives, and monitoring actions. The company has further established its Biodiversity Management Commitments and Policy, serving as guidelines for biodiversity practices across the organization. Future nature-related actions include the development of operational policies and the formulation of biodiversity assessment plans, including measures to promote biodiversity in its direct operations and supply chain.

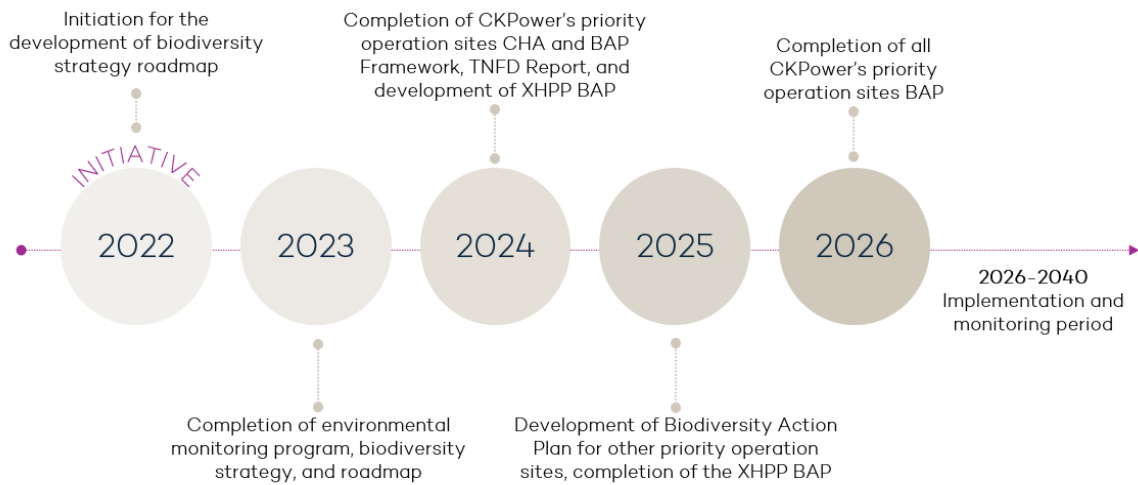


Figure 1-1: CKPower Biodiversity Roadmap (Phase I)

As CKPower is currently in the first phase of its Biodiversity Roadmap, the company expects to progressively develop biodiversity targets to manage its nature-related dependencies, impacts, risks, and opportunities. After the roadmap’s establishment in 2022, the company has set its major biodiversity targets and performance monitoring for the year 2024 (see Table 1-2 below).

Table 1-2: Long-term Goals, Targets, and Performance for 2024

Long-term Goals	2024 Targets	2024 Performance
Develop biodiversity roadmap and management plan for required sites	Fully develop phase 1 of the biodiversity roadmap	CKPower fully developed phase 1 of the biodiversity roadmap
Fully assess residual impacts of all operational sites by 2026	100% TNFD Report and Disclosure Fully undertake screening and scoping for biodiversity-sensitive sites	100% TNFD Report and Disclosure CKPower is 65% towards completing the screening and scoping for sensitive sites
Achieving No Net Loss (NNL) and Net Zero by 2040	Achieve an increase in successful upstream fish migrations at XHPP compared to the previous year (>125 species)	CKPower achieved successful upstream fish migrations at XHPP for more than 132 fish species

2 Governance

Board’s Oversight and Management Roles

CKPower’s governance structure comprises the **Board of Directors (BoD)**, four sub-committees, and the management team. The four sub-committees are the **Audit Committee**, the **Executive Committee**, the **Nomination and Remuneration Committee**, and the **Corporate Governance, Risk Management and Sustainable Development Committee**. The BoD is the highest level of management that takes responsibility for nature policies, commitments, and targets. The BoD is involved in the monitoring of nature-related issues through progress reporting in collaboration with the Business Unit Managers and the Sustainability Support and Disclosure Working Team.

The Sustainable Development Steering Committee, chaired by the Managing Director, includes Managing Directors and managers of four power plants. This committee sets strategic directions in line with sustainability frameworks, making recommendations to the Sustainability Working Teams while also overseeing appointments and performance evaluations. The Sustainable Development Steering Committee reports on risk management and nature-related issues to the Board twice a year, while the Board meets to discuss four times a year^{4,5}.

Both the Sustainable Development Steering Committee and the Plant Sustainability Working Teams report to the Corporate Governance, Risk Management, and Sustainable Development Committee, supported by the Corporate Sustainability Working Team and the Business Continuity Management Working Team. The Plant Sustainability Working Teams ensure alignment with the company’s targets, supporting the Sustainability Supporting and Disclosure Working Team in reporting performance to the BoD quarterly. They facilitate idea exchange and implement sustainable management strategies in line with CKPower’s vision and commitments. See Figure 2-1 below for CKPower’s structure of sustainability and climate change governance.

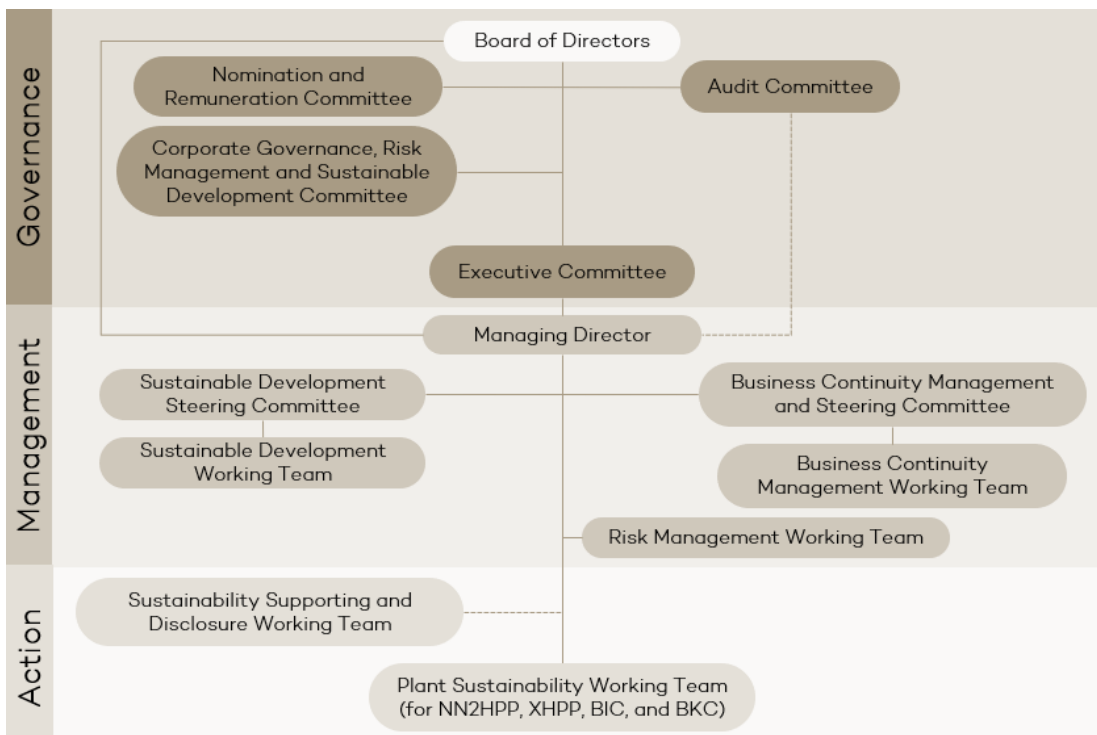


Figure 2-1: CKPower Structure of Sustainability and Climate Change Governance

⁴ Board of Directors Meeting No. 7/2023

⁵ Sustainable Development Steering Committee Meeting No. 2/2023

Nature-related responsibilities are assigned to the Shared Service Center (SSC) Environment and Social Department, with work plans and achievements reported to the BoD through line function management. CKPower has defined remuneration metrics for executives and senior managers, assigning them responsibility for sustainability and climate change issues. Nature-related issues are covered in CKPower's annual sustainability report, overseen through five main steps:

1. **Understand the Organization's Context:** CKPower considers various factors such as strategies, location, risks, global trends, international human rights principles, and industry changes. The company identifies stakeholders affected by their activities and compares current material issues with past ones of national and global importance, such as those from the United Nations Global Compact (UNGC) and the Sustainable Development Goals (SDGs).
2. **Identify Actual and Potential Impacts:** The company identifies its actual and potential impacts (positive and negative) in a multi-dimensional approach to assess impact duration. These impacts are categorized as either financial impacts⁶ or sustainability impacts⁷.
3. **Assess the Significance of Impacts:** CKPower conducts stakeholder interviews to understand the impact of operations across multiple dimensions. Financial impacts are assessed based on magnitude and likelihood, while sustainability impacts are assessed based on magnitude, scope, remediability, and likelihood.
4. **Prioritize the Most Significant Impacts for Reporting:** Issues with high to very high impact on stakeholders and the business are prioritized and categorized as material and fundamental business issues, approved by the BoD and relevant committees.
5. **Continuous Reporting, Review, and Development:** CKPower mitigates negative impacts of material and business issues, sharing initial identification with key stakeholders. The company regularly reviews processes and discloses relevant data in sustainability reports, assessed by external auditors for compliance with GRI standards.

CKPower uses a six-step risk management process consisting of preparation, risk identification, risk assessment, control identification, risk profile, and risk monitoring. In addition to the Risk Management Working Group, the Company also engages the Internal Audit Department to monitor and review its risk management processes for additional oversight.

Human Rights Policy and Engagement Activities

CKPower enforces its Human Rights Policy across the company, subsidiaries, Tier 1 suppliers, business partners, stakeholders, ethnic minorities, and local communities, including vulnerable groups in line with international human rights standards. In 2022, CKPower developed a human rights action plan for the year 2022–2026. The company recognizes communities and society as key stakeholders and aims to strengthen their economic resilience and reduce social inequalities. The company also conducts site surveys to understand traditional lifestyles, issues, and needs. CKPower's Corporate Social Responsibility (CSR) strategies focus on three principles: quality of life, natural resources and environment, and employment security. Activities and projects are carried out following the 3Cs principle: Competence, Co-creation, and Cooperation.

The company's Human Rights Policy aligns with several international human rights laws such as the United Nations Universal Declaration of Human Rights (UDHR), the United Nations Guiding Principles on Business and Human Rights (UNGPs), including Thailand's National Action Plan on Business and Human Rights (NAP Implementation) and the Constitution of the Kingdom of Thailand. Following the UNGPs' pillars to 'Protect, Respect, and Remedy'⁸, CKPower ensures

⁶ Impact that material issues not accounted for in the company's financial statements have on the company's operations (CKPower, 2023).

⁷ Impacts caused by the company's operations that affect the environment, society, or people (CKPower, 2023).

⁸ https://www.ohchr.org/sites/default/files/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf

stakeholders do not engage in human rights abuses. The company provides remedies through whistleblowing channels, grievance mechanisms, and complaint-handling processes. CKPower encourages business partners and customers to adhere to the UNGPs and ensures partners demonstrate these commitments. Every three years, CKPower engages an external third party to conduct human rights due diligence on all its operations and subsidiaries following the UNGPs. Annual surveys and discussions with local communities are conducted to align their views with the company's operational framework. These processes inform CKPower's strategies, code of conduct, objectives, and structure, reflecting its commitment to good corporate governance.

The company also has a Complaints & Whistleblowing Management and Human Rights Remedies Policy to manage adverse human rights impacts with a Stakeholder Engagement Policy that applies to the company, subsidiaries, and stakeholders. Communication channels include contacting the Investor Relations Department, emailing relevant committees, or sending a sealed letter to the Chairman of the Audit Committee. Potential violations are investigated by the Internal Audit Office, with results reported to relevant units and the Managing Director. Disciplinary actions are taken for confirmed breaches. A Whistleblower Protection Policy ensures whistleblowers are protected, allowing them to remain anonymous and receive fair remedies and compensation.

Linkage to nature

CKPower acknowledges the critical link between business and nature, recognizing that neglecting biodiversity can disrupt business activities and negatively impact society. To address this, CKPower aligns with the Convention on Biological Diversity (CBD)⁹, committing to biodiversity conservation and restoration. The company conducts biodiversity impact assessments at each site to develop mitigation measures and assess residual impacts, initiating a Biodiversity Roadmap.

Although CKPower's human rights policy does not specifically address nature-related risks, the XHPP's Environmental and Social Impact Assessment (ESIA) addressed the engagement of local communities. For instance, the XHPP fish passage facilities and monitoring programs aim to conserve ecological resources and minimize negative impacts on livelihoods. One of CKPower's nature-related advocacy activities was collaborating with the Lao PDR government authorities to declare a No-Fishing Zone in the Mekong River, both upstream and downstream of the XHPP. Following the Biodiversity Roadmap targets and the LPHPP's commitments to the IFC PS6, the company expects to continue its involvement in nature-related advocacy activities. The company also engages local ethnic groups following the Free, Prior, and Informed Consent (FPIC)¹⁰ standard, allowing them to consent to or withdraw from projects affecting their territories. Additionally, CKPower is committed to reporting on GRI 411: Rights of Indigenous People 2016, specifically GRI 411-1: Incidents of violations involving the rights of Indigenous peoples.

The Community and Society Group participates in assessing and managing CKPower's nature-related impacts where the stakeholder engagement process includes defining objectives, identifying and analyzing stakeholders, formulating engagement plans, implementing the process, managing risks, and monitoring progress. CKPower conducts site surveys around power plants to understand community life and quality, addressing issues through CSR activities, as biodiversity is a material sustainability issue that applies to all affected stakeholders¹¹. CKPower also holds annual community engagement exercises to monitor operational impacts, gather feedback, and address concerns, following ISO 26000 and the Standard of Corporate Social Responsibility, Department of Industrial Works (CSR-DIW). Complaints are promptly managed per ISO 14001. Senior management and the BoD are informed about these processes through regular Sustainable Development Steering Committee meetings. Two hydropower sites (XHPP and NN2HPP) are identified as having material nature-related issues, with the future LPHPP to be included once operational.

⁹ <https://www.cbd.int/intro>

¹⁰ <https://www.fao.org/3/i6190e/i6190e.pdf>

¹¹ <https://www.ckpower.co.th/en/sustainability/stakeholder-engagement#>

3 Strategy

All CKPower's and its subsidiaries' production processes include hydropower, solar energy, transmission lines, and cogeneration power plants across the Lao PDR and Thailand. The impacts and dependencies on nature have been identified using the TNFD's Additional Sectoral Guidance: Electric Utilities and Power Generators¹² published in June 2024, which already contains the updated version of the ENCORE¹³ Tool. Following ENCORE, production processes were classified using the International Standard Industrial Classification for All Economic Activities (ISIC)¹⁴.

Material Nature-related Impacts and Impact Pathways

CKPower's direct operations impact four of the five main drivers of biodiversity loss: land use change, climate change, resource use, and pollution. Three out of four business activities have at least one material impact on these drivers. The impact level and impact pathways are described for each of the four business activities as follows:

- **Electricity Transmission and Distribution** has very low to medium projected impacts, with its highest impact related to *land use*. The impact varies based on the location and ecosystems affected by the transmission lines. Some of CKPower's power lines, for instance, are in highly modified areas with short line spans. Others, such as those of hydropower projects, often have longer spans and may pass through both modified lands and natural areas. *Invasive species* and *disturbances* are additional impacts associated with this process.
- **Fossil Fuel Thermal Power Stations:**
 - **Cogeneration Power Plants** have the highest projected impacts of CKPower's activities, mostly through its contribution to climate change from very high *GHG emissions*, very high emissions of *non-GHG air pollutants*, *toxic pollutants*, *water pollutants*, and high generation of *solid waste*. The area of *land and freshwater use*, and volume of water use, are projected to be of medium impact
- **Hydropower** has very high impacts from *disturbance* and *freshwater ecosystem use* e.g., changes of hydrological conditions. Its projected impact on land use has been identified as high. *Invasive species* is also another recognized impact from this production process.
- **Solar** has very low to low across the impact drivers. This reflects CKPower's solar activities, as the sites consist of only photovoltaic (PV) type solar as opposed to concentrating solar power (CSP) technology, where water usage is more significant. Additionally, most of CKPower's solar sites are located on the rooftops.

Material Nature-related Dependencies and Dependency Pathways

Natural capital assets (e.g., water, habitats, species, atmosphere), when in a healthy state, provide **ecosystem services** that are necessary for a company's operations. These can be categorized into **provisioning services** and **regulating and maintenance services**. Provisioning services are those that provide a direct input (e.g., water supply). Regulating and maintenance services, in contrast, are those that protect against disruption and are critical and irreplaceable to the company's production processes, which are extremely vulnerable if the ecosystem collapses. For example, natural ecosystems like wetlands, floodplains, and forests play roles in 'flood control' because they act as natural buffers against flooding and help reduce flood

¹² <https://tnfd.global/wp-content/uploads/2024/06/Additional-Sector-Guidance-Electric-Utilities-and-Power.pdf?v=1719525999>

¹³ <https://encorenature.org/en/>; During the initial analysis, the ENCORE tool, which supports organizations in adopting the TNFD recommendations, followed the Global Industry Classification Standard (GICS). ENCORE later updated its database in July 2024 to align with the ISIC classification which is reflected in this TNFD. Though the current TNFD recommends the Sustainable Industry Classification System (SICS) framework, it still acknowledges both the GICS and ISIC.

¹⁴ Cogeneration power plant falls under fossil fuels thermal power stations following the ISIC classification.

severity. All production processes analyzed have at least one material dependency on an ecosystem service provided by one or more natural capital assets. The dependency level and dependency pathways are described for each of the four business activities of CKPower:

- **Electricity transmission and distribution** generally have low ecosystem service dependencies, with *flood control* being a relevant ecosystem service rather than a direct operational requirement.
- **Fossil fuels thermal power stations**
 - **Cogeneration Power Plants** have a high dependency on *water supply and global climate regulation*, and medium dependencies on *water purification and flood control*. For the company, this production process has low dependencies on *soil and sediment retention*.
- **Hydropower** has very high dependencies on provisioning as well as regulating and maintenance services, namely on *water supply, water flow regulation, and flood control*. *Global climate regulation and storm mitigation* are of medium importance for hydropower.
- **Solar** has a very high dependency on *global climate regulation* and medium dependencies on *water supply, local climate regulation, and storm mitigation*. For CKPower's, this production process has low dependency on *soil and sediment retention and flood control*.

Interconnection Between Nature-related Impacts and Dependencies

Based on the analysis of CKPower's nature-related impacts and dependencies, all existing natural capital assets are impacted by the company's direct operations. CKPower's operations have high impacts owing to e.g., *GHG emissions, disturbance, freshwater use, and land use*. Some of the most important ecosystem services that CKPower's operations depend on include *water supply, water flow regulation, global climate regulation, and flood control*. The company is highly dependent on six of the eight assets, including *atmosphere, habitats, land geomorphology, soils and sediments, species, and water*, and simultaneously impacts all the natural capital assets.

Nature-related Risks

CKPower's nature-related risks arise from dependencies and impacts on land, freshwater, and atmosphere, affecting ecosystem services and society. CKPower's dependencies and impacts are on the three major realms, including land (L), freshwater (F), and atmosphere (A). The company currently considers the following time horizons for scenario analysis and risk reduction strategies: ♦ = short-term (1-2 years), ◆ = medium-term (3-5 years), and ◆ = long-term (>5 years) (see Table 3-1). CKPower has already assessed its budget for managing risks at priority sites (XHPP and NN2HPP) and will align these with its strategic and capital allocation plans.

Table 3-1: Examples of Nature-related Risks Relevant to CKPower

Nature-related risks		Realms			Time Horizon	Financial Implications
		L	F	A		
Physical Risks						
Acute	• Extreme weather events can disrupt or reduce operational processes				◆	Damages increased costs while affecting revenue.
Transition Risks						
Policy	• Emerging/regulatory changes to biodiversity policies, legislation requirements, and standards				◆	Policy changes can lead to increased compliance costs or penalties
Systemic Risks						
Ecosystem Stability	• Collapse of ecosystem and ecosystem services due to synergistic impacts				◆	System risks can lead to major loss of revenue, growth, and investment

Nature-related Opportunities

Nature-related opportunities are those that lead to positive outcomes for the organization and nature. These may occur through the removal of negative impacts or the creation of direct positive impacts. CKPower is pursuing several nature-related opportunities to achieve positive outcomes for both the organization and nature. At the XHPP, the company uses a hybrid fish passing and fish lock system to support the Mekong River fish migration to preserve fish biodiversity in one of the world's most diverse rivers. The company utilizes technologies like Passive Integrated Transponders (PIT) fish tagging and underwater imaging under collaboration with institutes such as the National University of Lao (NUOL), Living Aquatic Resources Research of Lao (LARReC), Charles Sturt University (CSU), and the Australian Center for International Agricultural Research (ACIAR) to study fish migration. CKPower also engages local communities to enhance their understanding of fish monitoring initiatives. The company leverages this experience when developing new sites like the LPHPP. Selected examples of the opportunities, applicable realm, and time horizon are provided below in Table 3-2.

Table 3-2: Example of Nature-related Opportunities Relevant to CKPower

Nature-related Opportunities	Realms			Time Horizon
	L	F	A	
Market Opportunity				
<ul style="list-style-type: none"> Achieving biodiversity targets, performance, and company positioning leads to increased access to green bonds, green investments, and green loans 				◆
Resource Efficiency				
<ul style="list-style-type: none"> Advancing partnerships and adoption of technological innovations for species monitoring, efficient project design, and operational processes can create positive reputational value and enhance biodiversity targets 				◆
Reputational Capital				
<ul style="list-style-type: none"> Voluntary adoption of new or emerging biodiversity standards/initiatives to reduce impacts on nature and promote sustainability. 				◆

Remark: ◆ = Short term (1-2 years) ◆ = Medium term (3-5 years) ◆ = Long term (>5 years)

Effects of nature-related issues

CKPower adopts the mitigation hierarchy to balance biodiversity and business operations throughout project life cycles, working with consultants to assess biodiversity impacts early on. All power plants undergo Environmental Impact Assessments (EIAs) and comply with national standards to mitigate biodiversity impacts. The company prioritizes environmental responsibility in procurement, selecting suppliers with environmental certifications and promoting green procurement. CKPower's vision to become a "Sustainable Leader" drives changes in business practices through the setting of ambitions towards biodiversity targets and action plans, and investments in conservation measures. The company applies technical knowledge from fish monitoring campaigns to new hydropower sites and adopts new monitoring techniques like environmental DNA (eDNA) collection. CKPower expands into new customer segments and strategic areas within ASEAN, collaborating with partners to develop renewable energy and low-carbon hydrogen production. The company is currently understanding the financial implications of nature-related risks and opportunities. In 2022, the company developed a five-year action plan to strengthen business resiliency through risk reduction and diversification of opportunities. CKPower has been partnering with AFRY Thailand Ltd. to screen priority sites and develop BAPs, thereby recognizing their impacts and dependencies on nature. The company expects to expand location assessment activities over future reporting cycles.

4 Risk and Impact Management

As described in Strategy, the ENCORE Tool was used to identify the projected impacts and dependencies of CKPower’s direct operations while the IBAT tool provides site-specific data from the IUCN Red List, World Database of Protected Areas (WDPA), and Key Biodiversity Area (KBA). EIAs have been conducted for all operational sites, and additional Critical Habitat Assessments (CHA) are being carried out for the hydropower plant sites, which have the most material impacts and dependencies on nature. CKPower’s risk management strategies are provided in Table 4-1 based on selected examples of nature-related risks in the previous chapter.

Table 4-1: Risk Management Practices for the Identified Nature-related Risks

Nature-related risks		Risk management
Physical Risks		
Acute	<ul style="list-style-type: none"> Extreme weather events can disrupt or reduce operation processes 	<ul style="list-style-type: none"> Power plant design considers site-specific aspects to ensure safety of communities, people, and ecosystems. (XHPP) Concrete enforcements were used to mitigate the risk of earthquake impacts. Emergency Action Plan (EAP) is in place to reduce risks.
Transitional Risks		
Policy	<ul style="list-style-type: none"> Emerging or regulatory changes to policies and legislation on biodiversity requirements and environmental standards 	<ul style="list-style-type: none"> The company recently reviewed its material topics while considering changes in regulations and global trends in line with GRI Standards. A double materiality process was used to assess topics, with emphasis on financial and sustainability impacts
Systemic Risks		
Ecosystem Stability	<ul style="list-style-type: none"> Collapse of ecosystem and ecosystem services due to synergistic impacts 	<ul style="list-style-type: none"> The company partners with an international consulting firm to develop BAPs for priority sites as a part of their No Net Loss and Net Gain biodiversity targets. The company expects to be increasingly committed to new biodiversity targets once plan implementation commences.

Nature-related issues are integrated into CKPower’s risk management through a set of Biodiversity Management Guidelines, including:

- **Biodiversity Management Policy:** The core principle of this policy is to ensure compliance with biodiversity regulations, promote biodiversity communication at all levels, and initiate conservation projects.
- **Environmental Impact Analysis and Mitigation Hierarchy:** CKPower studies EIAs for project sites, which was built upon various biodiversity data sources. The company seeks to manage impacts through avoidance, minimization, restoration, and offsetting.
- **Biodiversity Targets, Roadmap, and Risk Management:** The company sets biodiversity targets, defines scope and screening processes, assesses risks and impacts to develop preventive measures, and monitors progress. The company uses a risk management process and has categorized risk groups as strategic, operational, financial, or compliance.
- **Stakeholder Engagement:** CKPower established working groups based on assessed risks and impacts while promoting stakeholder engagement to improve conservation.

CKPower integrates nature-related risk management into its overall risk management process through the Corporate Sustainability Working Group. CKPower has also developed Environmental, Social, and Governance (ESG) Strategies (includes nature-related issues), which are included in the company’s risk management processes.

5 Metrics and Targets

For the management of **nature-related dependencies and impacts**, the TNFD recommends the disclosure of each of the dependencies and impacts described in Strategy. This is reflected through the recommended core global and core sector metrics for dependencies and impacts (C1.0–C5.0) and additional disclosure indicators and metrics, including those on responses where relevant (A1.0–A6.0 and A17.0–A25.3). According to CKPower’s Sustainability Report (2023), the company has disclosed its total GHG emissions following the TCFD, including other emissions in line with the reporting requirements of the Global Reporting Initiative (GRI). In line with other reporting standards, the company has also partially disclosed other metrics included in the TNFD recommendations, such as those related to pollution and resource use.

For **nature-related risks and opportunities**, the TNFD recommends disclosing a set of core global and core sector risk and opportunities metrics (C7.0–C7.4) and additional disclosure indicators and metrics, including other responses where relevant (A7.0–A25.3). In partial fulfillment of Metric No. C7.3 on nature-related opportunities¹⁵ and in line with CKPower’s Sustainability Report (2023)¹⁶, the company spent a total of 3.96 million THB on nature restoration and conservation projects, conducting Critical Habitat Assessments (CHAs), and developing Biodiversity Action Plans (BAPs) across its operational sites as part of its strategic response. This cost is considered under the sustainable management of natural resources and the environment of CKPower in 2023. Over future reporting cycles, the company anticipates an increase in expenditure related to this metric, following the expansion of site assessments, implementation of BAPs, and the identification of new, nature-related opportunities. Additionally, Xayaburi Power Co., Ltd. (XPCL) has also issued a green bond worth 3,500 million¹⁷ THB in 2023 (in line with A16.0). In this regard, the company is studying the adoption of Internal Carbon Pricing (ICP) for future GHG management strategies. The company is currently in the process of understanding its nature-related risks and opportunities, including the prospects to disclose information in alignment with the TNFD Core Global Disclosure Indicators and Metrics (C7.0–7.4).

Over future reporting cycles, the company sets to include other information including the company’s assessment metrics on the magnitude of risks and opportunities, financial effects of nature-related risks and opportunities, monitors insights for actions, policies, and strategies to manage risks and opportunities, and forward-looking nature-related indicators and metrics consistent with business planning time horizons.

6 Conclusion

Overall, CKPower demonstrates a strong governance structure and commitment to sustainability through board and management oversight on nature-related issues, comprehensive risk management processes, and adherence to international human rights standards. The company recognizes that their most material impacts include freshwater use for hydropower, disturbance, and pollutant emissions, with high dependencies on ecosystem services like water supply, water flow regulation, flood control, and global climate regulation. CKPower’s operations contribute to four main drivers of biodiversity loss, including land use change, climate change, resource use, and pollution. The recently initiated Biodiversity Roadmap and action plan align with CKPower’s vision to become a leading renewable energy producer with a low carbon footprint, demonstrating proactive adaptability to nature-related risks. The company is still currently developing plans for priority sites, with full implementation expected from 2026–2040. In line with the TNFD disclosure recommendations, CKPower also expects to conduct additional internal assessments and disclose relevant information. While nature-related issues are now partially integrated into CKPower’s strategies, the company continues to align its efforts with key frameworks as the global biodiversity crisis becomes apparent in an ever-changing world.

¹⁵ C7.3: Capital expenditure, financing or investment deployed towards nature-related opportunities, by type of opportunity, with reference to a government or regulator green investment taxonomy or third-party industry or NGO taxonomy

¹⁶ <https://www.ckpower.co.th/en/downloads/sustainability-report>

¹⁷ [Energy Management and Climate Change | CKPower](#)